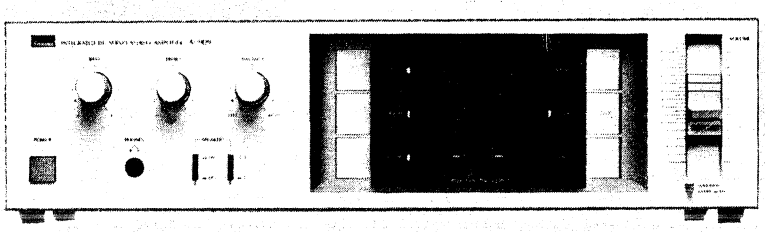
A-909

SERVICE MANUAL

INTEGRATED DC SERVO STEREO AMPLIFIER

SANSUI A-909



Sansui

SANSUI ELECTRIC CO., LTD.

• SPECIFICATIONS

Power output
Min. RMS, both channels driven from 20 to 20,000 Hz, with no more than 0.05 % total harmonic distortion
70 watts per channel into 8 ohms

Load impedance . . . . 8 ohms

Total harmonic distortion
. . . . . less than 0.05 % at or below rated min. RMS power output

Frequency response (at 1 watt)
. . . . . 5 to 60,000 Hz +1 dB, −2 dB

RIAA curve deviation (PHONO, 20 Hz to 20 kHz)
. . . . . +0.5 dB, −0.5 dB

Input sensitivity and impedance (1 kHz, for rated power output)
PHONO . . . . . 2.5 mV/47 kilohms
(Max. input capability; 120 mV at 1 kHz, less than 0.1 % total harmonic distortion)
TUNER, TAPE PLAY
. . . . . 150 mV/47 kilohms

Output level (1 kHz)
TAPE REC . . . . . 130 mV into 47 kilohms

Signal to noise ratio (short-circuit, A-network)
PHONO . . . . . 72 dB
TUNER, TAPE PLAY
. . . . . 90 dB

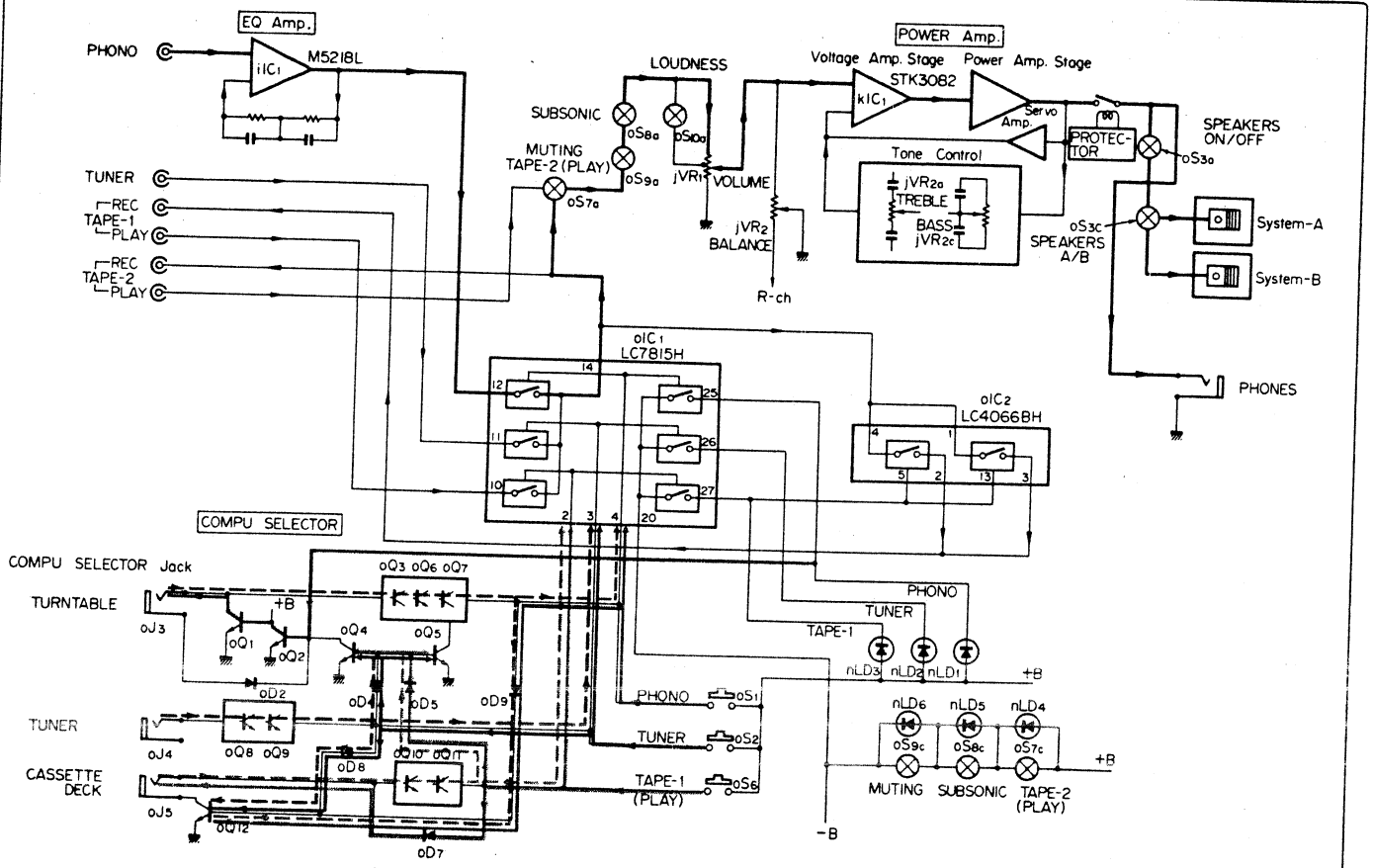
Power requirements
Power voltage . . . . 120/220/240 V (50/60 Hz)
For U.S.A. & Canada
. . . . . 120 V (60 Hz)
Power consumption
. . . . . 230 watts 280 VA Rated
350 watts Maximum

Dimensions . . . . . 430 mm (16-15/16") W
118 mm (4-11/16") H
245 mm (9-11/16") D

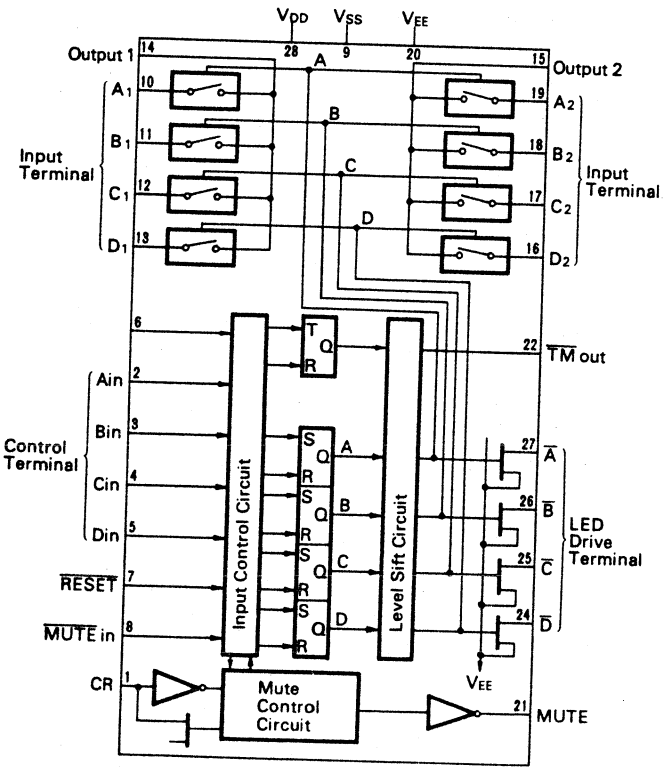
Weight . . . . . 5.6 kg (12.4 lbs.) net
6.4 kg (14.1 lbs.) packed

* Design and specifications subject to change without notice for improvements.

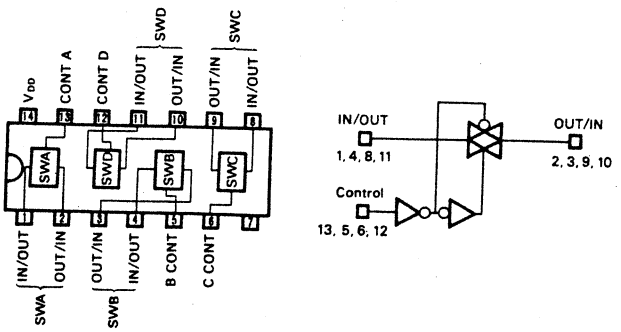
1. BLOCK DIAGRAM



• LC7815H Analog Function Switch IC



• LC4066BH Quard Bilateral Switch IC



* LC7815H

Condition of control input terminals Port (Pin No.)				Connected input terminal to output 1 and 2 terminals		Connected terminal to LED indicator
Ain (2)	Bin (3)	Cin (4)	Din (5)	PORT (Pin No.)	PORT (Pin No.)	PORT (Pin No.)
H	*	*	*	A1(10)	A2(19)	A(27)
L	H	*	*	B1(11)	B2(18)	B(26)
L	L	H	*	C1(12)	C2(17)	C(25)
L	L	L	H	D1(13)	D2(16)	D(24)

H : H level L : L level * : Don't care

2. OPERATION OF COMPU SELECTOR (See Block Diagram)

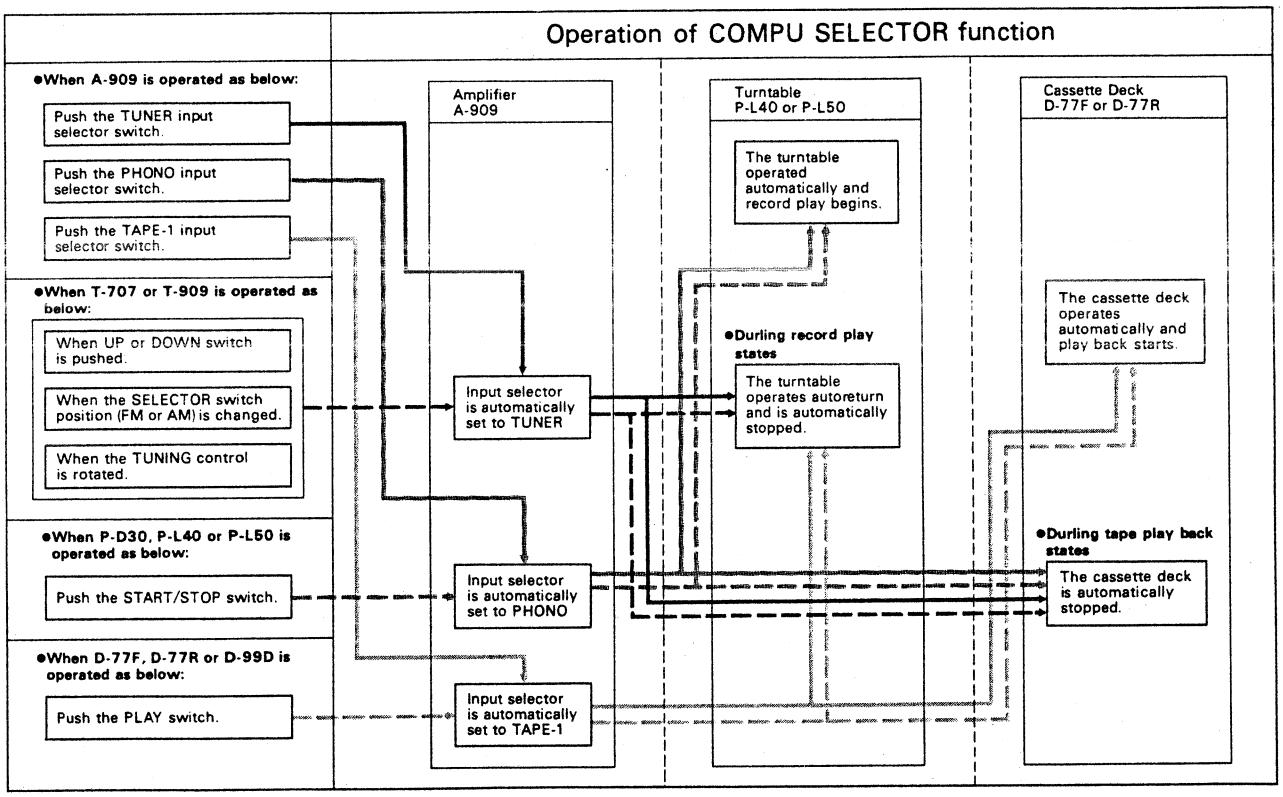
* The amplifier (A-909) has COMPU SELECTOR function which works with a tuner (T-707 or T-909), a turntable (P-D30, P-L40 or P-L50), a tape deck (D-77F, D-77R or D-99D).

A. Operation when one of the input selector switches of the amplifier is pushed

1) • When the PHONO switch is pushed, the platter of the turntable (P-L40 or P-L50) starts rotating and the tonearm automatically moves to play record.
   • When the TUNER or TAPE-1 switch is pushed during record play, the tonearm returns to the arm rest and the platter stops rotating automatically.
2) • When the TAPE-1 switch is pushed, the cassette deck (D-77F or D-77R) starts automatically to playback a tape.
   • When the PHONO or TUNER switch is pushed during tape playback, cassette deck stops automatically.

B. Operation when one of the function switches of combined unit is controlled

1) When the START/STOP switch of the turntable (P-D30, P-L40 or P-L50) is pushed, the input selector of the amplifier is automatically set to the PHONO mode.
2) When one of the FM/AM selection switch and the UP/DOWN switch of the tuner (T-707 or T-909) is pushed, or the tuning knob of the tuner is touched by hand, the input selector of the amplifier is automatically set to TUNER mode.
3) When the PLAY switch of the cassette deck is pushed, the input selector of the amplifier is automatically set to the TAPE-1 mode.


Operation of COMPU SELECTOR function
•When A-909 is operated as below:
Push the TUNER input selector switch.
Push the PHONO input selector switch.
Push the TAPE-1 input selector switch.
•When T-707 or T-909 is operated as below:
When UP or DOWN switch is pushed.
When the SELECTOR switch position (FM or AM) is changed.
When the TUNING control is rotated.
•When P-D30, P-L40 or P-L50 is operated as below:
Push the START/STOP switch.
•When D-77F, D-77R or D-99D is operated as below:
Push the PLAY switch.
Amplifier A-909
Input selector is automatically set to TUNER
Input selector is automatically set to PHONO
Input selector is automatically set to TAPE-1
Turntable P-L40 or P-L50
The turntable operated automatically and record play begins.
•During record play states
The turntable operates autoreturn and is automatically stopped.
Cassette Deck D-77F or D-77R
The cassette deck operates automatically and play back starts.
•During tape play back states
The cassette deck is automatically stopped.

3. BIAS CURRENT ADJUSTMENT (See Top View on Page 5)

Note:

1. Room Temperature . . . . . 18°C ~ 28°C
2. For adjustment, run the unit for more than 3 minutes after the power is switched on.
3. Before turning ON POWER switch, turn kVR1 on F-3728 fully counterclockwise.

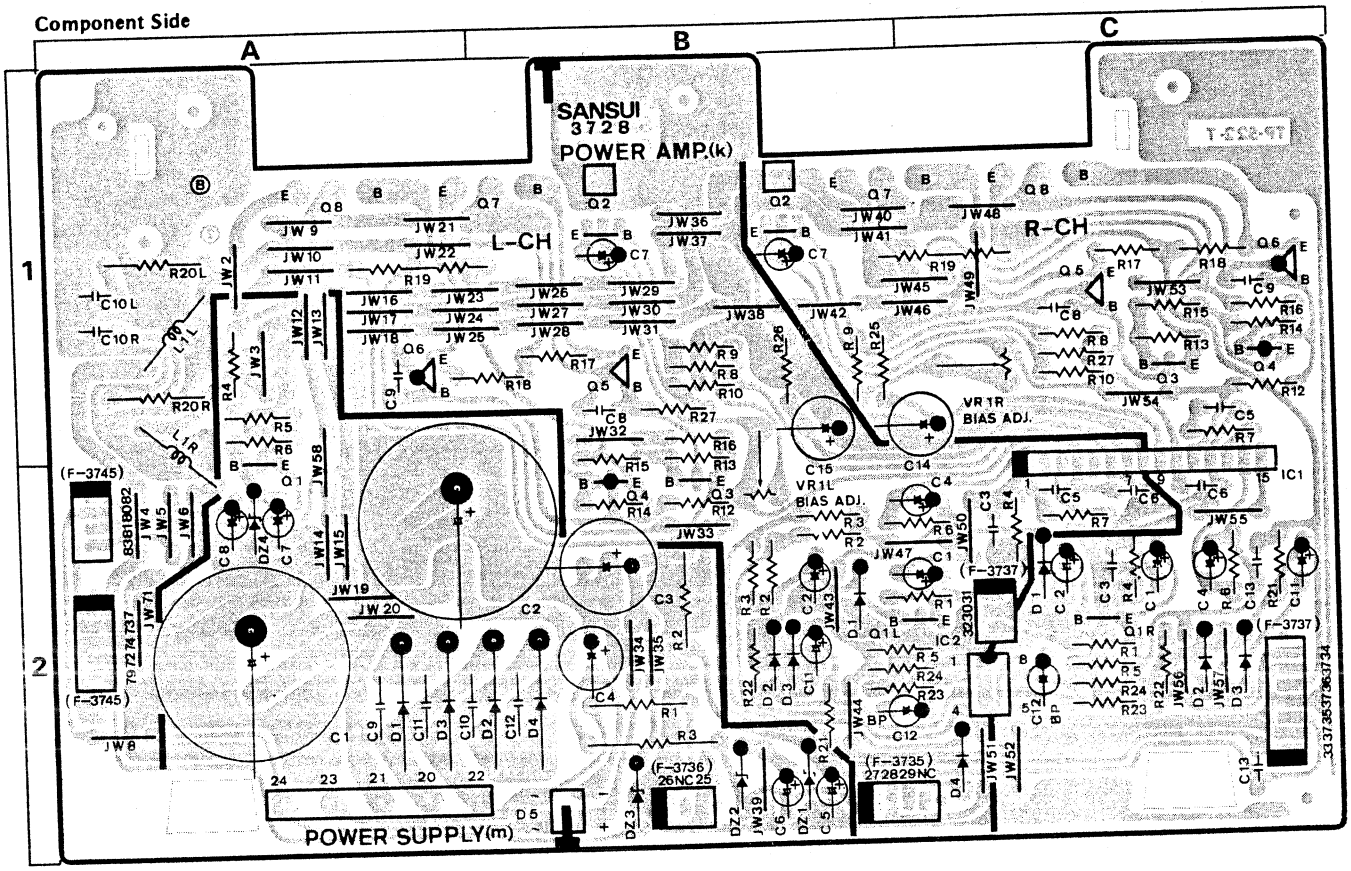
STEP	SUBJECT	MEASURE OUTPUT	ADJUST	ADJUST FOR	REMARKS
1.	L-CH	Connect DC volt meter between emitters of kQ7, kQ8 on F-3728	kVR1 (L-CH) F-3728	DC 3mV	This bias current adjustment converts current value into voltage by ohms law.
2.	R-CH	Same as above	kVR1 (R-CH) F-3728	DC 3mV	

4. PARTS LOCATION & PARTS LIST

•Since some of capacitors and resistors are omitted from parts lists in this Service Manual, refer to the Common Parts List for capacitors & resistors, which was appended previously to Sansui Manual.

4-1. F-3728 Power Amp. & Power Supply Circuit Board (Stock No. 00711901)

Component Side



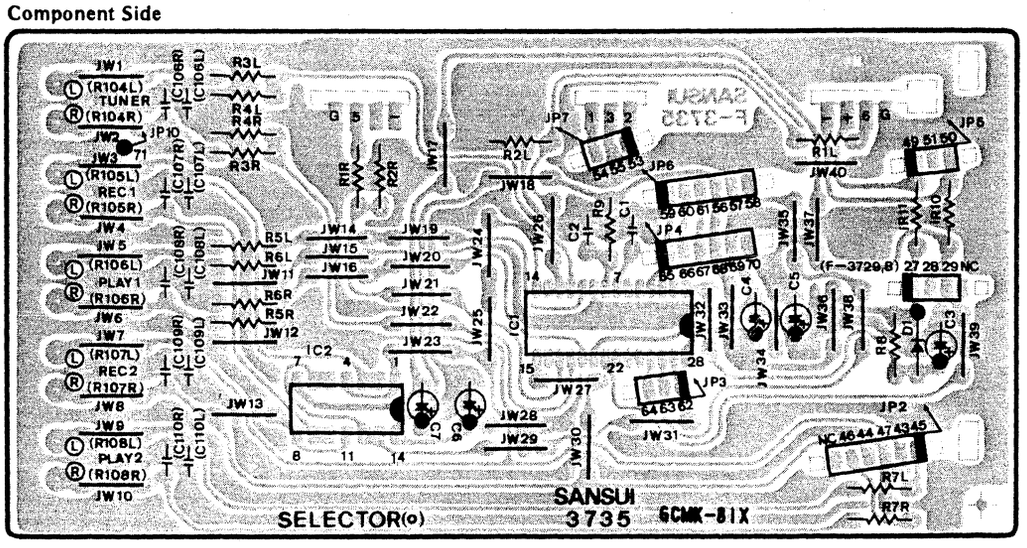
Parts List

Parts No.	Stock No.	Description
•Transistor		
kQ1	46367301	2SC2458
	or 46367101	2SC2603
	or 46391901	2SC2785
kQ2	03067401	2SC1845
kQ3	46367301	2SC2458
	or 46367101	2SC2603
	or 46391901	2SC2785
kQ4	46367201	2SA1048
	or 46367001	2SA1115
	or 46392001	2SA1175
kQ5	07206401	2SD600K
kQ6	07206301	2SB631K
kQ7	46085301	2SC2581
kQ8	46085401	2SA1106
•IC		
kIC1	46394900	STK3082-2
kIC2	03607700	NJM4558D
•Diode		
kD1	03117600	1S2473
	or 46086000	1S1588
kD2	03117600	1S2473
	or 46086000	1S1588
kD3	03117600	1S2473
	or 46086000	1S1588
kR11	46229400	220Ω 1/2W N.I.R.
kR17	46229200	150Ω 1/2W N.I.R.
kR18	46229200	150Ω 1/2W N.I.R.
kR19	00091700	0.33Ω x 2 Ce.R.
kR20	46248100	10Ω 1W N.I.R.
kR25	46229000	100Ω 1/2W N.I.R.
kR26	46229000	100Ω 1/2W N.I.R.

Parts No.	Stock No.	Description
kC12	08450900	4.7μF 16V E.B.
kL1	46394500, 1	Inductor Coil
kVR1	10370400	1kΩ (B) S.V.R., bias
•Transistor		
mQ1	03067401	2SC1845
•Diode		
mD1	03115300	30D2
mD2	03115300	30D2
mD3	03115300	30D2
mD4	03115300	30D2
mD5	46273600	DBB10-B
•Zener Diode		
mDZ1	03170300	RD12F
mDZ2	03170300	RD12F
mDZ3	03169300	RD7.5F
mDZ4	46105800	05Z24
mR1	46248700	33Ω 1W N.I.R.
mR2	46249600	180Ω 1W N.I.R.
mR3	00186200	120Ω 2W N.I.R.
mR4	46229600	330Ω 1/2W N.I.R.
mR5	46229600	330Ω 1/2W N.I.R.
mR7	46228100	18Ω 1/2W N.I.R.
mC1	08301800	6800μF 63V E.C.
mC2	08301800	6800μF 63V E.C.
mC9	08680400	10000pF 500V C.C.
mC10	08680400	10000pF 500V C.C.
mC11	08680400	10000pF 500V C.C.
mC12	08680400	10000pF 500V C.C.

4-2. F-3735 COMPU Selector Control IC Circuit Board (Stock No. 00712401)

Component Side



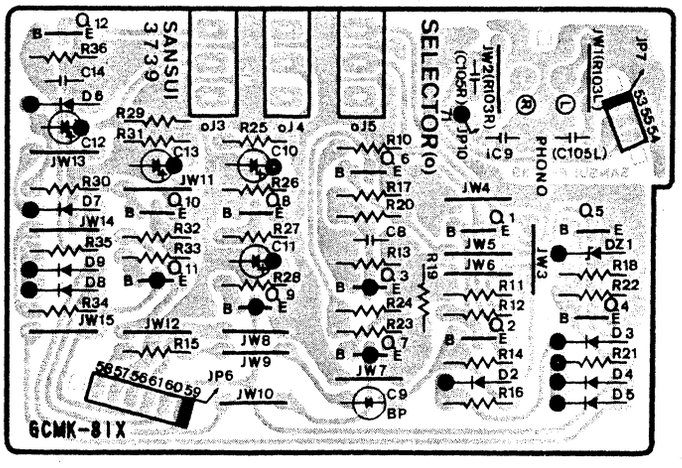
Parts List

Parts No.	Stock No.	Description
iR10	46229000	100Ω 1/2W N.I.R.
iR11	46229000	100Ω 1/2W N.I.R.
•IC		
oIC1	46394800	LC7815H
oIC2	46255000	LC4066BH

Parts No.	Stock No.	Description
•Diode		
oD1	03117600	1S2473D
	46371500	4P Input Terminal, TUNER/TAPE-1 (REC)
	46363900	6P Input Terminal, TAPE-1 (PLAY)/TAPE-2

4-3. F-3739 COMPU Selector Circuit Board (Stock No. 00712801)

Component Side



Parts List

Parts No.	Stock No.	Description
•Transistor		
oQ1	46367301	2SC2458
	or 46367101	2SC2603
	or 46391901	2SC2785
oQ2	46367301	2SC2458
	or 46367101	2SC2603
	or 46391901	2SC2785
oQ3	46367201	2SA1048
	or 46367001	2SA1115
	or 46392001	2SA1175
oQ4	46367301	2SC2458
	or 46367101	2SC2603
	or 46391901	2SC2785
oQ5	46367301	2SC2458
	or 46367101	2SC2603
	or 46391901	2SC2785

Parts No.	Stock No.	Description
oQ6	46367301	2SC2458
	or 46367101	2SC2603
	or 46391901	2SC2785
oQ7	46367201	2SA1048
	or 46367001	2SA1115
	or 46392001	2SA1175
oQ8	46367301	2SC2458
	or 46367101	2SC2603
	or 46391901	2SC2785
oQ9	46367201	2SA1048
	or 46367001	2SA1115
	or 46392001	2SA1175
oQ10	46367301	2SC2458
	or 46367101	2SC2603
	or 46391901	2SC2785

Parts No.	Stock No.	Description
oQ11	46367201	2SA1048
	or 46367001	2SA1115
	or 46392001	2SA1175
oQ12	46367301	2SC2458
	or 46367101	2SC2603
	or 46391901	2SC2785
•Diode		
oD2	03117600	1S2473
	or 46086000	1S1588
oD3	03117600	1S2473
	or 46086000	1S1588
oD4	03117600	1S2473
	or 46086000	1S1588

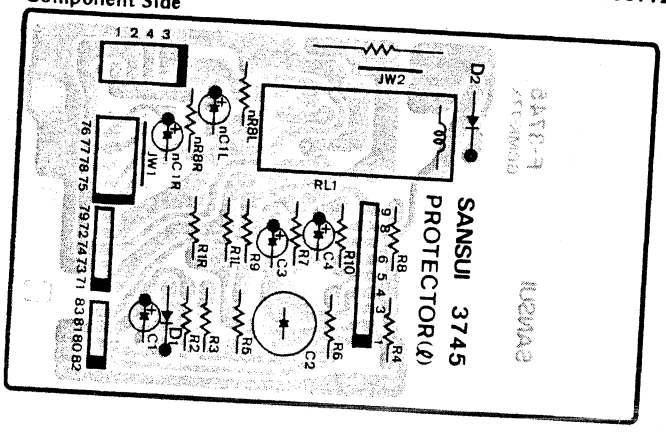
Parts List <F-3739>

Parts No.	Stock No.	Description
oD5	03117600	1S2473
	or 46086000	1S1588
oD6	03117600	1S2473
	or 46086000	1S1588
oD7	03117600	1S2473
	or 46086000	1S1588
oD8	03117600	1S2473
	or 46086000	1S1588
oD9	03117600	1S2473
	or 46086000	1S1588

Parts No.	Stock No.	Description
•Zener Diode		
oDZ1	46111200	05Z5.1
oC9	08450800	3.3μF 16V E.B.
oJ3	46148200	Jack, COMPU SELECTOR (PHONO)
oJ4	46148200	Jack, COMPU SELECTOR (TUNER)
oJ5	46148200	Jack, COMPU SELECTOR (TAPE-1)
	46363700	2P Input Terminal, PHONO

4-4. F-3745 Protector Circuit Board (Stock No. 00712901)

Component Side

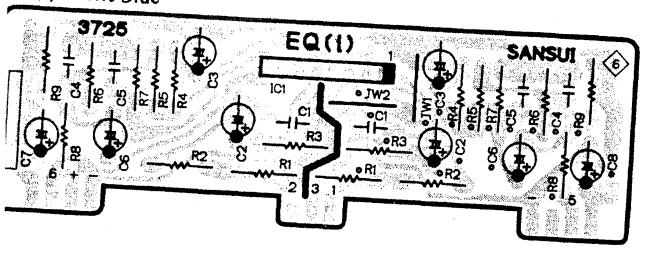


Parts List

Parts No.	Stock No.	Description
•IC		
IIC1	46207600	TA7317P
•Diode		
ID1	03117600	1S2473
	or 46086000	1S1588
ID1	03117700	10E-2
IC2	08460200	220μF 6.3V E.B.
IRL1	46254900	Relay

4-5. F-3725 EQ. Amp. Circuit Board (Stock No. 00695501)

Component Side

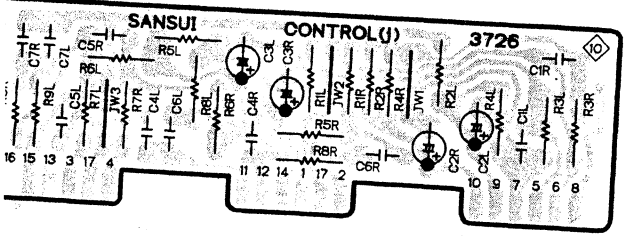


Parts List

Parts No.	Stock No.	Description
•IC		
iIC1	46078900	M5218L
iC1	46137200	220pF 50V C.C.

4-6. F-3726 Tone Control Circuit Board

Component Side



Parts List

Parts No.	Stock No.	Description
jC7	07216800	68000pF 25V C.C.

Note: This circuit board is not supplied as the assembled. However, individual parts on the circuit board are provided by order.

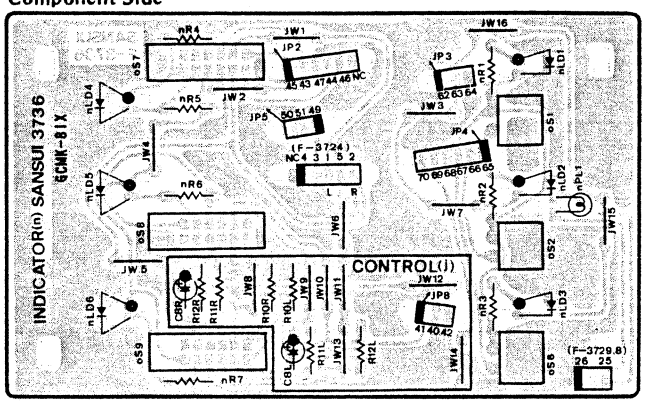
•Abbreviations

C.R. : Carbon Resistor	E.B. : Bi-Polar Electrolytic Capacitor
S.R. : Solid Resistor	E.BL. : Low Leak Bi-Polar Electrolytic Capacitor
Ce.R. : Cement Resistor	Ta.C. : Tantalum Capacitor
M.R. : Metal Film Resistor	F.C. : Film Capacitor
F.R. : Fusing Resistor	M.P. : Metalized Paper Capacitor
N.I.R. : Non-Inflammable Resistor	P.C. : Polystyrene Capacitor
C.C. : Ceramic Capacitor	G.C. : Gimmic Capacitor
C.T. : Ceramic Capacitor, Temperature Compensation	V.R. : Variable Resistor
E.C. : Electrolytic Capacitor	S.V.R. : Semi Variable Resistor
E.L. : Low Leak Electrolytic Capacitor	SW. : Switch

• Note: The circuit board, F-3736, F-3737, F-3738, F-3727, F-3731 & F-3732 are not supplied as the assembled. However, the individual parts on the circuit board are provided by orders.

4-7. F-3736 Input Selector Switch & Indicator Circuit Board

Component Side

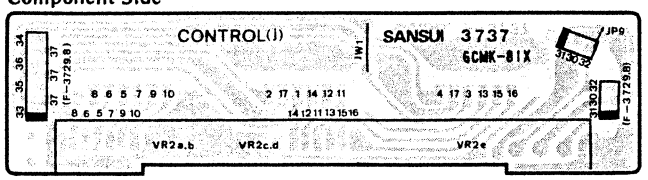


Parts List

Parts No.	Stock No.	Description
nLD1	46176900	LED TLS-123
nLD2	46176900	LED TLS-123
nLD3	46176900	LED TLS-123
nLD4	46176900	LED TLS-123
nLD5	46176900	LED TLS-123
nLD6	46176900	LED TLS-123
nPL1	46315900	Pilot Lamp 12V 1.5A
oS1	46395900	Push SW., PHONO
oS2	46395900	Push SW., TUNER
oS6	46395900	Push SW., TAPE-1
oS7	46365400	Push SW., TAPE-2
oS8	46365400	Push SW., SUBSONIC
oS9	46365400	Push SW., MUTING

4-8. F-3737 BASS/TREBLE/BALANCE Volume Circuit Board

Component Side

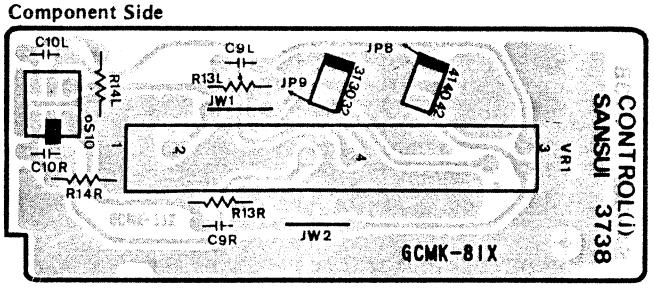


Parts List

Parts No.	Stock No.	Description
jVR2	46363100	50kΩ (C) x 2 & 250kΩ V.R., BASS/TREBLE/BALANCE

4-9. F-3738 VOLUME Circuit Board

Component Side

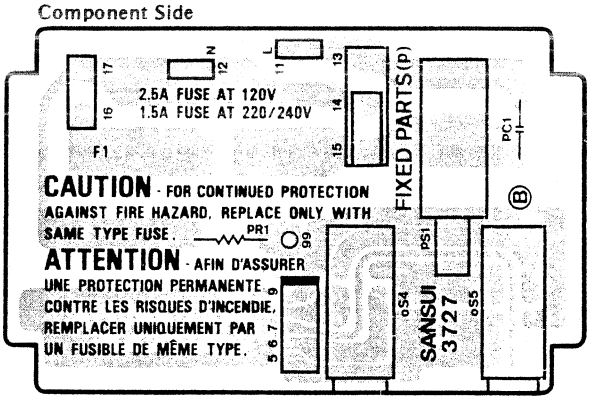


Parts List

Parts No.	Stock No.	Description
jC9	46137600	470pF 50V C.C.
jC10	07216200	22000pF 25V C.C.
jVR1	46395300	150kΩ Slide V.R., VOLUME
oS10	46360900	Push SW., LOUDNESS

4-10. F-3727 POWER Switch Circuit Board

Component Side


2.5A FUSE AT 120V
1.5A FUSE AT 220/240V
CAUTION - FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH SAME TYPE FUSE.
ATTENTION - AFIN D'ASSURER UNE PROTECTION PERMANENTE CONTRE LES RISQUES D'INCENDIE, REMPLACER UNIQUEMENT PAR UN FUSIBLE DE MÊME TYPE.
FIXED PARTS(P)
SANSUI 3727

Parts List

Parts No.	Stock No.	Description
pF1	07189100	Fuse 5.0A 250V (120V)
	07188700	Fuse 2.5A 250V (220V/240V)
pC1	46425800	10000pF 400V C.C.
pS1	46364300	Push SW., POWER

4-11. F-3731 Speaker Selector Circuit Board

Parts List

Parts No.	Stock No.	Description
oS3	46361100	Push SW., SP selector
oJ1	46265700	Jack, PHONES

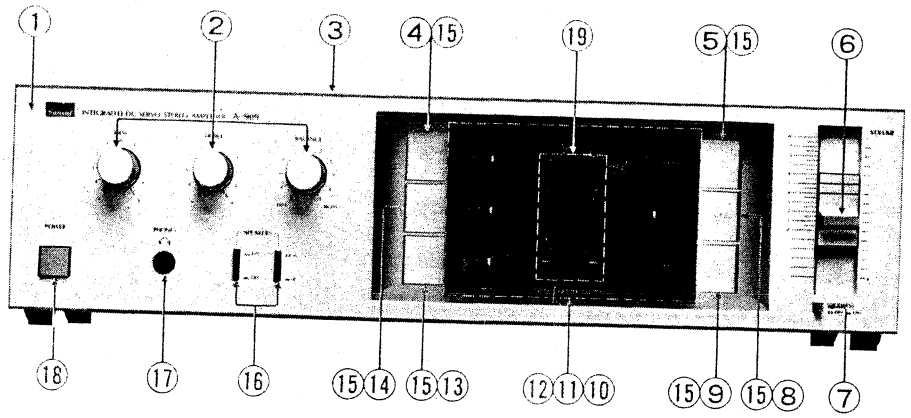
4-12. F-3732 Speaker Terminal Circuit Board

Parts List

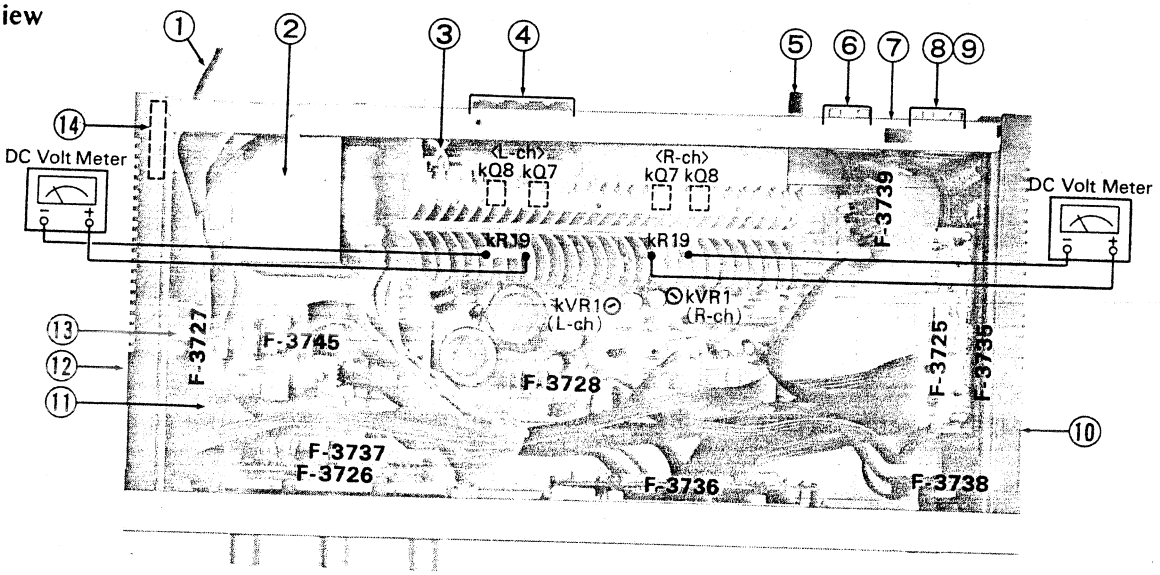
Parts No.	Stock No.	Description
	46364100	8P Push Terminal, speaker

5. OTHER PARTS

5-1. Front View



5-2. Top View



Parts List <Front View>

Parts No.	Stock No.	Description
•Common Parts		
2	46363100	50kΩ (C) x 2 & 250kΩ V.R., BASS/TREBLE/BALANCE
3	07952400	Bonnet
4	07925800	Knob, TAPE-2
	46365400	Push SW., TAPE-2
5	07925500	Knob, PHONO
	46396900	Push SW., PHONO
6	46395300	150kΩ Slide V.R., VOLUME
7	46360900	Push SW., LOUDNESS
8	07925600	Knob, TUNER
	46395900	Push SW., TUNER
9	07925700	Knob, TAPE-1
	46395900	Push SW., TAPE-1
10	07945100	Display Cover
13	07925100	Knob, MUTING
	46365400	Push SW., MUTING
14	07925200	Knob, SUBSONIC
15	47071300	Cushion Rubber
16	46361100	Push SW., SPEAKERS
17	46265700	Jack, PHONES
18	46364300	Push SW., POWER
19	46393400	LED LEVEL METER, LT1078
•Silver Model		
1	07933200	Front Panel
2	07932400	Knob, BASS/TREBLE/BALANCE
6	07932600	Slide Knob, VOLUME
7	07917200	Push Knob, LOUDNESS
11	47009500	Display Panel
12	47011500	Display Holder
16	47005500	Push Knob, SPEAKERS
18	07971210	Push Knob, POWER

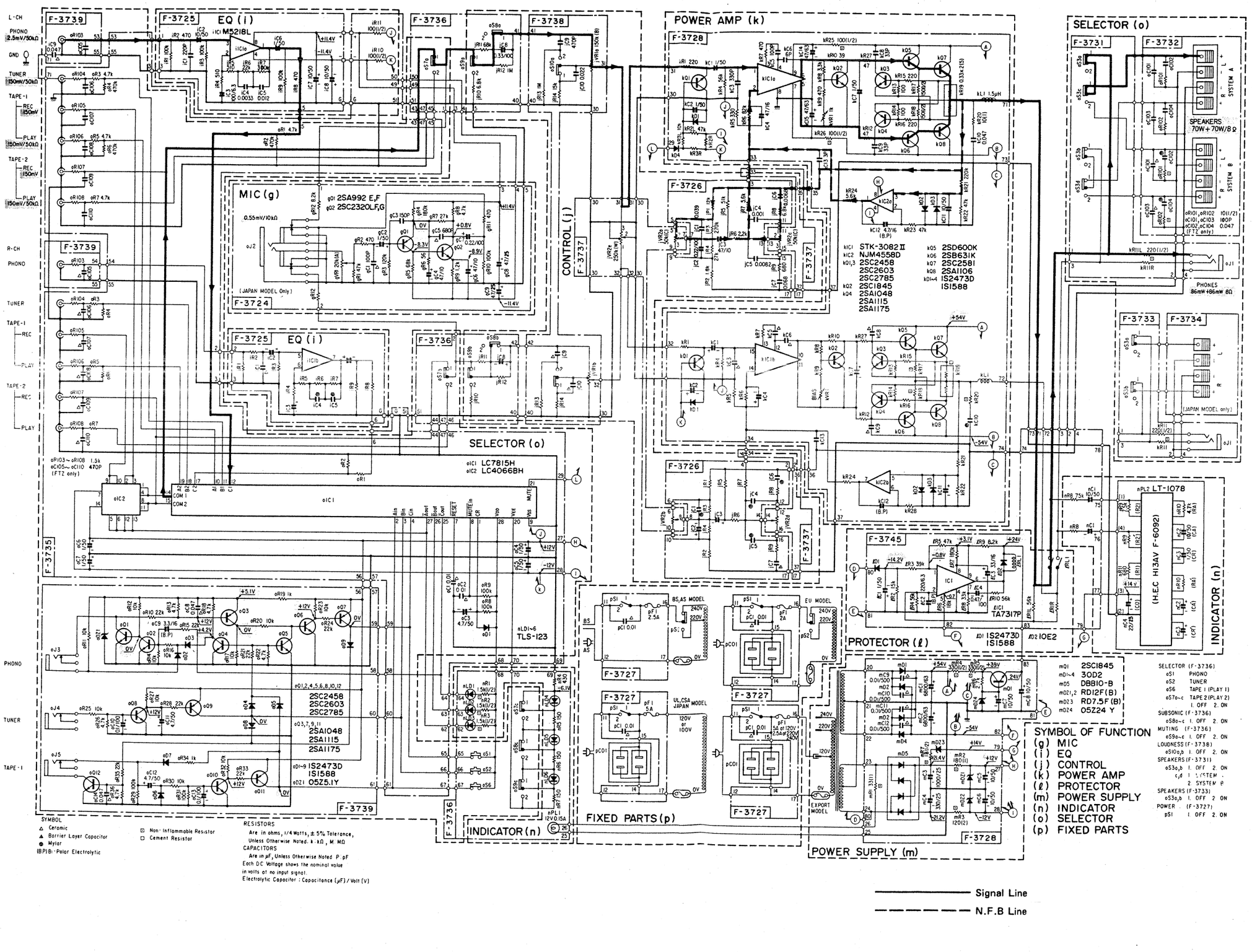
Parts No.	Stock No.	Description
•Black Model		
1	07962000	Front Panel
2	47033300	Knob, BASS/TREBLE/BALANCE
6	07932700	Slide Knob, VOLUME
7	07917300	Push Knob, LOUDNESS
11	07954400	Display Panel
12	07947900	Display Holder
16	07911000	Push Knob, SPEAKERS
18	07911210	Push Knob, POWER

Parts List <Top View>

Parts No.	Stock No.	Description
1	38004700	Power Supply Cord
2	15009101	Power Transformer
3	46365000	AC Outlet
4	46364100	8P Push Terminal, SPEAKERS
5	22301500	Ground Terminal
6	46363700	2P Input Terminal, PHONO
7	46148200	Jack (Mini), COMPU SELECTOR
8	46371500	4P Input Terminal, TUNER/TAPE-1 (REC)
9	46363900	6P Input Terminal, TUNER/TAPE-1 TAPE-2
10	07952700	Side Panel (R)
11	07947200	Joint Shaft (D), POWER SW.
12	07952600	Side Panel (L)
13	07189100	AC Fuse 5A 250V (120V)
	07188700	AC Fuse 2.5A 250V (220V/240V)
14	07917700	AC Cord Cover

6. SCHEMATIC DIAGRAM

* Design and specifications subject to change without notice for improvement.
* La présention et les spécifications sont susceptibles d'être modifiées sans préavis par suites d'améliorations éventuelles.
* Änderungen, die dem technischen Fortschritt dienen, bleiben vorbehalten.



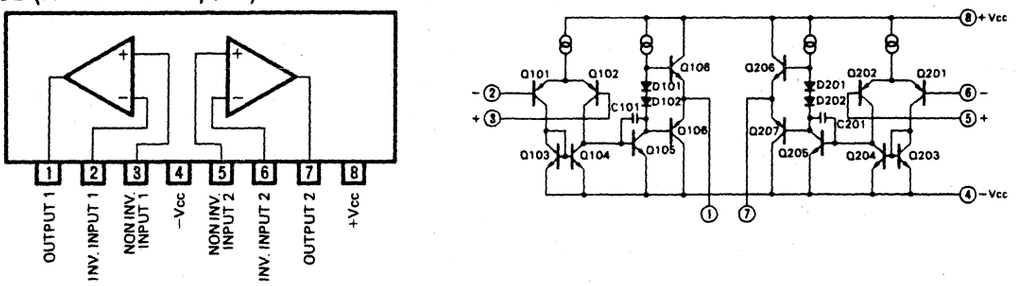
SYMBOL
△ Ceramic
▲ Barrier Layer Capacitor
● Mylar
(BP) Bi-Polar Electrolytic

□ Non-Inflammable Resistor
□ Cement Resistor

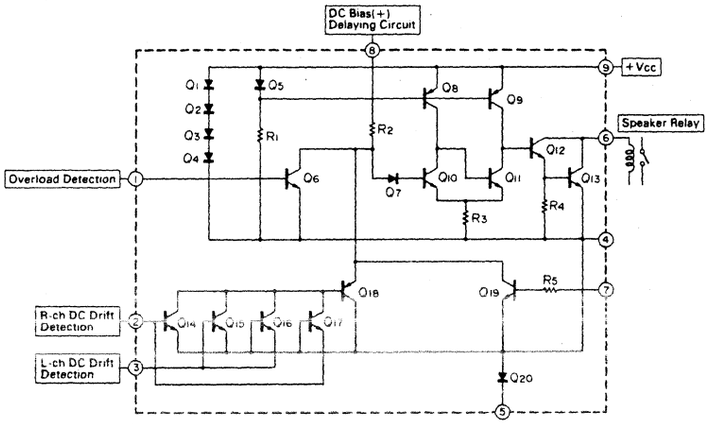
RESISTORS
Are in ohms, 1/4 Watts, ± 5% Tolerance, Unless Otherwise Noted. k-kΩ, M-MΩ
CAPACITORS
Are in μF, Unless Otherwise Noted P-pF
Each DC Voltage shows the nominal value in volts at no input signal.
Electrolytic Capacitor : Capacitance (μF) / Volt (V)

7. INTERIOR BLOCK DIAGRAM OF IC

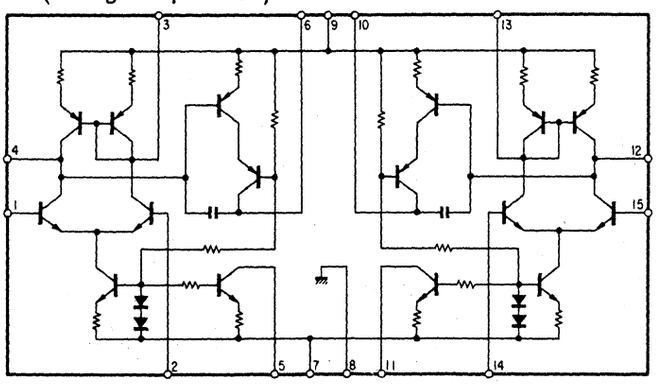
● M5218L (Audio PRE Amp. IC)



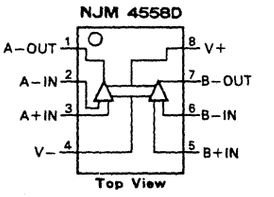
● TA7317P (Protector IC)


DC Bias(+) Delaying Circuit
+Vcc
Speaker Relay
Overload Detection
R-ch DC Drift Detection
L-ch DC Drift Detection
Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8 Q9 Q10 Q11 Q12 Q13 Q14 Q15 Q16 Q17 Q18 Q19 Q20
R1 R2 R3 R4 R5

● STK3082 (Voltage Amplifier IC)



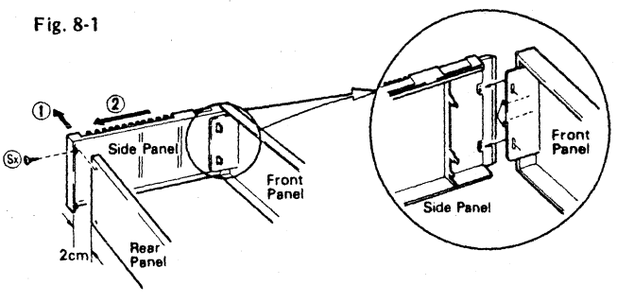
● NJM4558D (OP Amp. IC)



8. REPLACEMENT OF SIDE PANEL L(R)

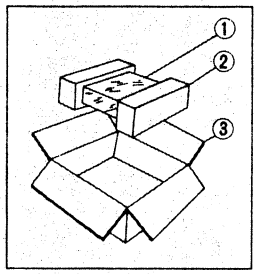
1) Remove bonnet and bottom plate.
2) Remove the screw (Sx) fixing side panel L (R) from rear panel side.
3) Shift the position of the side panel L (R) 2 cm in the arrow direction ① and then pull it the arrow direction ② to remove the side panel L (R). (See Fig. 8-1)

Fig. 8-1



9. PACKING LIST

Parts No.	Stock No.	Description
1	91263810	Vinyl Cover
2	07949000	Styrofoam Packing
3	07948100	Carton Case <Silver Model>
	07948000	Carton Case <Black Model>



10. ACCESSORY LIST

Stock No.	Description
46356500	Operating Instruction

Sansui

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